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EXAMINER	
ROBINSON, KEITH O NEAL	
ART UNIT	PAPER NUMBER
1638	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/537,037	HEERES ET AL.	
	Examiner	Art Unit	
	KEITH O. ROBINSON	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *22 January 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10-12 and 15-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10-12 and 15-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action. Applicant's cancellation of claims 1-9, 13 and 14, amendment of claims 10 and 11 and addition of new claims 15-24, filed January 22, 2009, have been received and entered in full.

2. Claims 10-12 and 15-24 are under examination.

Response to Arguments

3. Applicant's cancellation of claims 1-9 and 14, see page 4, 2nd and 3rd paragraphs of 'Remarks' filed January 22, 2009, has rendered the 35 USC 101 rejection on pages 2-3 of the Office Action mailed October 3, 2008 moot.

4. Applicant's cancellation of claim 14, see page 4, 5th paragraph of 'Remarks' filed January 22, 2009, has rendered the 35 USC 112, second paragraph rejection on page 2 of the Office Action mailed October 3, 2008 moot.

5. Applicant's arguments, see page 5, 2nd paragraph of 'Remarks' filed January 22, 2009, regarding the 35 USC 112, first paragraph rejection for lack of written description on pages 3-5 of the Office Action mailed October 3, 2008, have been fully considered and found persuasive. The rejection has been withdrawn.

6. Applicant's arguments, see page 5, 4th paragraph to page 6, 2nd paragraph of 'Remarks' filed January 22, 2009, regarding the 35 USC 112, first paragraph rejection for lack of enablement on pages 5-6 of the Office Action mailed October 3, 2008, have been fully considered and found persuasive. The rejection has been withdrawn.

7. Applicant's arguments, see page 6, 3rd paragraph to page 7, 3rd paragraph of 'Remarks' filed January 22, 2009, regarding the 35 USC 102/103 rejection on pages 6-8 of the Office Action mailed October 3, 2008, have been fully considered and found persuasive. The rejection has been withdrawn.

Claim Objections

8. Claims 10-12, 15 and 17-24 are objected to because of the following informalities:

The language of the claim 10 is unclear and confusing. It is suggested that the claim read: A method for breeding and selecting a potato comprising:

(a) crossing a first parent potato [with] plant having at least one amf-allele with a second parent potato plant lacking [without] an amf-allele to produce progeny;

(b) [and] selecting and testing said progeny [by testing said progeny] for the presence of at least one amf-allele and [testing said progeny] for protein content; and

(c) selecting progeny with at least one amf allele with a protein content higher than detected in said first parent or said second parent.

Claims 11, 12, 15 and 17-24 recite "A method according to claim…". The term "a method" infers that there is more than one method. It is suggested that the claims be amended to change the term to recite "The method according to claim…".

Claims 17-24 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only

and/or cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 112, second paragraph

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. There are no steps detailing how protein storage is increased in a potato. It is unclear how providing a potato with an *amf*-allele according to the method of claim 10 would increase protein storage in a potato.

Claim Rejections - 35 USC § 112, first paragraph – Written Description

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 16-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 16 reads on a method for increasing protein storage in a potato comprising providing a potato with an amf-allele according to the method of claim 10. Claims 17-24 are dependent upon claim 16.

The specification fails to provide evidence that Applicant was in possession of any method for increasing protein storage in a potato comprising providing a potato with an amf-allele according to the method of claim 10.

On page 8 of 'Remarks' filed January 22, 2009, Applicant argues that support for claims 16-22 can be found on page 4, lines 6-17 of the specification because it describes a potato plant having at least one amf-allele-gene and increased capacity to store protein as measured by the amount of coagulating protein.

This is not persuasive. The specification fails to provide any description of the steps used the claimed method to increase protein storage in a potato. The specification does describe how to analyze coagulated protein content, see, for example, page 9, lines 1-23, however, this does not provide evidence that Applicant was in possession of a method for increasing protein storage in a potato.

See MPEP 2163(I) where it states "[t]o satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. See, e.g., Moba, B.V. v. Diamond Automation, Inc., 325 F.3d 1306, 1319, 66 USPQ2d 1429, 1438 (Fed. Cir. 2003); Vas-Cath, Inc. v. Mahurkar, 935 F.2d at 1563, 19 USPQ2d at 1116".

In the instant case, the specification does not describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention.

On page 8 of 'Remarks' filed January 22, 2009, Applicant argues that support for claims 23 and 24 can be found on page 4, lines 18-22; page 14, lines 28-31; Examples 1 and 2 and Table 4.

This is not persuasive. There is no evidence in the specification of any heterologous proteins used in a method for increasing protein storage in a potato nor is there any evidence that said heterologous proteins actually increase protein storage in potato.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of

each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 10-12 and 15-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobsen et al (Euphytica 44: 43-48, 1989), in view of Jacobsen et al (Euphytica 53: 247-253, 1991), in view of Poehlman et al (Breeding Potato, *In* Breeding Field Crops, Chapter 21, pages 419-433, 1995), in view of Farran et al (Transgenic Research 11: 337-346, 2002).

The claims read on a method for breeding and selecting a potato comprising crossing a first parent potato with at least one amf-allele with a second parent potato without an amf-allele and selecting progeny by testing said progeny for the presence of at least one amf-allele and testing said progeny for protein content and selecting progeny with at least one amf allele with a protein content higher than detected in said first parent or said second parent.

With regard to claim 10, Jacobsen et al (1989) teach a method for breeding and selecting a potato comprising crossing a first parent potato with at least one amf-allele with a second parent potato without an amf-allele. See, for example, page 44, 2nd column, last paragraph to page 45, 1st column where it teaches "[c]rosses have been made with four…doubled shoots of the amf-mutant…and with the amylose containing diploids 87.007 and 87.0008". Also see, for example, page 45, Table 1 where it teaches pollination of amf-mutant 86.040 with amylose containing diploid plants.

Jacobsen et al (1989) teach selecting progeny by testing said progeny for the presence of at least one amf-allele. See, for example, page 45, last paragraph to page 46, 1st column where it teaches analyzing plantlets for starch granule composition in columella cells. In addition, Jacobsen et al (1991) teach selecting progeny for the presence of at least one amf-allele. See, for example, page 249, 2nd column, last paragraph to page 250, 1st column, lines 1-13 where it teaches selection of amylose free genotypes.

Jacobsen et al do not teach selecting for higher protein content; however, it would have been obvious to one of ordinary skill in the art to select for higher protein content because Poehlman et al teach the importance for breeding for improved quality such as protein content in potato. See, for example, page 432, 'Breeding for improved quality' where it teaches, "[m]ore breeding work needs to be done on improving nutrient content, particularly for developing countries, as lack of protein is a serious problem".

With regard to claims 11 and 16, Poehlman et al teach the importance for breeding for improved quality such as protein content in potato. See, for example, page 432, 'Breeding for improved quality' where it teaches, "[m]ore breeding work needs to be done on improving nutrient content, particularly for developing countries, as lack of protein is a serious problem". Thus, it would have been obvious to one of ordinary skill in the art to test for higher protein content.

With regard to claims 12, 15 and 17, Jacobsen et al (1989) teach selecting progeny homozygous for the amf-gene. See, for example, page 47, 1st column, last

paragraph where it teaches that the mutant amf-character in potato plants is recessive and monogenic and see Table 3 where plants having the amf-character were selected.

With regard to claims 18-22, as stated above, Poehlman et al teach the importance for breeding for protein content and it would have been obvious to one of ordinary skill in the art that the protein content of the selected potato plant would depend upon the goals of the individual breeder.

With regard to claims 23 and 24, Farran et al teach providing potato plants with a gene encoding a heterologous protein. See, for example, page 338, 2nd column, last paragraph to page 339, 1st column, 2nd paragraph where it teaches providing potato plants with human serum albumin. One of ordinary skill in the art would have understood that other heterologous proteins can also be used in the method taught by Farran et al because they teach, "Potato tubers may be used, by applying this technology, to produce other heterologous proteins of interest…".

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of Applicant's invention to combine the above teachings to produce the claimed invention.

One of ordinary skill in the art would have been motivated to combine these teachings because Jacobsen et al (1991) teach that potato is the raw material for industrial production of starch and that starch producers prefer potato cultivars with different ratios of amylopectin and amylose (see page 247, 1st column, 1st paragraph).

In addition, one of ordinary skill in the art would have reasonable expectation of success based on the success of Jacobsen et al (1989), as discussed above.

Conclusion

16. No claims are allowed.

Contact Information

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEITH O. ROBINSON whose telephone number is (571)272-2918. The examiner can normally be reached Monday – Friday, 8:00 a.m. - 4:30 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached at (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Keith O. Robinson

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